Atari Computer Enthusiasts (N.S.W.)

INSIDE INFO No. 4 December 1982

3 GAMES:

MASTERMIND

SQUARES

SNAKE

ALSO:

128 COLOURS

FLASHING CURSOR

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ODDS & SODS

Atari Computer Enthusiasts (N.S.W.)

Atari Computer Enthusiasts (N.S.W.) is an independent, non-profit computer users' group loosely affiliated with Atari Computer Enthusiasts in the U.S.A. We have no connections with ATARI, Inc. or their Australian distributors, Futuretronics Australia Pty Ltd.

Our aims include promotion of the ATARI 400/800 Home Computer System; instructing both beginners and advanced users in programming techniques; exchanging hints, tips and ideas amongst members and generally enjoying ourselves.

Meetings are held at 6.0 P.M. sharp on the first Monday of every month (or the second Monday if it clashes with a public holiday) at the offices of:

I.P. Sharp Associates
8th Floor,
Carlton Centre,
55 Elizabeth Street,
Sydney.
(between King Street and Martin Place)

Membership to A.C.E.(N.S.W.) is $15 joining fee and $15 annual subscription (or $10 joining fee and $10 annual subscription for students under 18 and still at school).

Subscriptions or postal enquiries may be directed to:

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Phone enquiries:

Tony Reeve (President): 452-2974
Barry Williams (Vice President): 452-2229
Steven Marcus (Secretary/Treasurer): 387-4287
Garry Francis (Editor): 789-1397

Meetings for 1983

Note: No meeting in January
*7th February
7th March
*11th April (due to Easter)
2nd May
*6th June
4th July
*1st August
5th September
*10th October (due to 8-Hour Day Public Holiday)
7th November
*5th December

* indicates release dates for INSIDE INFO - subject to unforseen circumstances. Deadline for articles is the meeting prior to the release date.

Editorial

I'm pleased to report that following the Annual General Meeting in November, we now have our first fair dinkum committee. There are 8 committee members and 5 of these have assistants. The new committee consists of:

President: Tony Reeve
Vice President: Barry Williams
Secretary/Treasurer: Steven Marcus
Assistant: Volkhardt Ammerlahn
Meetings Organiser: Peter Bamford
Assistant: Peter Dickeson
Software Exchange: John Massara
Assistant: Gregg Ramsey
Reference Library: Anthony Dinallo
Assistant: Jeff Maddock
Bulletin Board: Paul Phillips
Assistant: Vince Grogan
Editor: Garry Francis

Thanks to all those members that attended and showed their enthusiasm at the A.G.M. and congratulations to all the new committee members. I'm sure we'll be hearing of some very interesting projects from them in the months to come. In fact, they have already had a committee meeting and as a result, several items of interest are listed in "Odds & Sods" elsewhere in this issue. The committee is going to need a lot of support to implement some of their plans, so please give them all the help you can!

Please note our change of address on page 2. We have now got a post office box at the G.P.O. and all correspondence should be directed to that address. Please also note that there will be no meeting in January due to the holidays and what have you.

With the festive season fast approaching, I'd like to wish all our members a very merry Christmas and a prosperous and fruitful New Year.

- Garry Francis

From The President

For some 24 hours after the A.C.E.(N.S.W.) Annual General Meeting I found myself repeating "President! You President!". I had planned to nominate for a position on the committee, but didn't expect President!

The committee is now starting to plan activities for 1983 and one of the big events will be the first Personal Computer Show, 10-12 March at Centrepoint, Sydney. A.C.E.(N.S.W.) will be there, so all you "out of towners" plan to be in Sydney that week.

In closing, I am sure you will join me in thanking the earlier steering committee for nurturing A.C.E.(N.S.W.) through its formative months and special thanks to Garry Francis for the great job he has done.

Merry Christmas and happy New Year.

- Tony Reeve

MASTERMIND

by Paul Phillips

[It seems like every man and his dog has written a version of Mastermind. It is one of the classic computer games, but strangely enough, nearly every version I've seen is trash. Paul's version is somehow different. It's one of the best versions around and has great graphics which simulate the original board game extremely well. Mastermind is distributed in Australia by Kenbrite and is available through all game stores and large toy departments and newsagents. - GF]

How To Play

After loading the program, use the SELECT key to select from the following 5 game options:

Game 1: 5 squares, 5 colours, repeats allowed
Game 2: 5 squares, 5 colours, no repeats
Game 3: 4 squares, 6 colours, repeats allowed
Game 4: 4 squares, 6 colours, no repeats
Game 5: 5 squares, 6 colours, repeats allowed

Press START to start the game. You can press START again at any time during the game to restart or OPTION to return to the game selection mode.

The game is played like normal Mastermind except that the computer picks the colours rather than another player. You have to guess what the colours are by deductive logic or trial and error. Use a joystick in Port 0 and change the colour of the flashing square by pushing the joystick forward. Move onto another square by moving the joystick left or right. When satisfied with your colours, finish the turn by pressing the trigger. The computer responds with a black square for each correct colour in the correct position and a white square for each correct colour in the wrong position. The order of the black and white squares is irrelevant. You get 10 turns. If you can't work it out by 10 turns, the computer will give you the correct sequence and you can start again or return to the game selection mode.

Programming Notes

This Mastermind program takes full advantage of the GTIA chip by using all 9 colour registers in GRAPHICS 10. The program also demonstrates a modular approach to program design. In GRAPHICS 10, you may use both the playfield and player-missile colour registers, giving a total of 9 colours that can be displayed at once. Mastermind uses up to 6 registers for the colours that you guess, one for the background and the remaining 2 for the black and white markers.

The program was written in a modular form. The set-up section (in which variables are initialised) was written first followed by the main program loop (which consists mainly of subroutine calls). Each subroutine was written and tested in turn. In this way, errors in each section were easily isolated and the program was put together in a day.

Variables

A() - Array to hold player's guess
C - Current colour register (1 to 6)
D - Delay
G - Game number (1 to 5)
I - Which square is flashing
N - Next colour
RP - Repeat flag
RQ - Square drawing parameter
RR - Square drawing parameter
RS - Number of squares in game
RT - Number of colours in game
S - Counter for black squares
T - Counter for white squares
Y - Current row

Z() - Array to hold computer's combination

Line Description

Lines 10-150: Allows user to select a game option.

Lines 200-230: Sets up game parameters RP, RQ, RR, RS and RT.

Lines 300-360: Dimension arrays, POKE colour registers with appropriate colours and set up game board.

Lines 400-450: Computer picks its colours and stores them in the array Z.

Lines 500-600: Draws up initial row of coloured squares and initializes array A for player's guesses.

Lines 610-690: Main program loop.

Subroutines

Lines 2000-2050: Plots a square in row Y, position I according to the parameters RQ and RR.

Lines 2100-2130: Changes the colour of the flashing square.

Lines 2200-2230: Moves one square left.

Lines 2300-2330: Moves one square right.

Lines 2400-2410: Flashes the square.

Line 2500: Delay routine. Length of delay determined by variable D.

Lines 3000-3210: Plots black and white squares. Line 3140 checks to see if player guessed correctly.

Lines 3220-3240: If all 10 turns used up, displays correct combination.

Lines 3250-3340: Play major or minor chord and wait for player to press console key.

```
1 REM ###############################
2 REM #          MASTERMIND         #
3 REM #       by Paul Phillips      #
4 REM # Published by Atari Computer #
5 REM #    Enthusiasts (N.S.W.)     #
6 REM #        December 1982        #
7 REM ###############################
10 GRAPHICS 18:CLR :G=1:D=30
20 POSITION 2,1
30 PRINT #6;"** MASTERMIND **"
40 POSITION 1,4
50 PRINT #6;"PLEASE select GAME"
60 POSITION 2,5
70 PRINT #6;"THEN PRESS start"
80 POSITION 7,9:? #6;"GAME:";G
90 POKE 53279,8
100 IF PEEK(53279)=6 THEN 200
110 IF PEEK(53279)<>5 THEN 100
120 G=G+1:IF G=6 THEN G=1
130 SOUND 0,30,10,15
140 GOSUB 2500:SOUND 0,0,0,0
150 GOTO 80
200 RP=INT(0.5+G/2-INT(G/2))
210 RQ=2+(G<3 OR G>4)
220 RS=RQ+1:RR=RQ+5-3*(RS=4)
230 RT=5+(G>2)
300 DIM Z(1,4),A(4)
310 GRAPHICS 10:COLOR 7:D=20:POKE 704,
8:POKE 705,26:POKE 706,56:POKE 707,86
320 POKE 708,116:POKE 709,200:POKE 710
,228:POKE 711,0:POKE 712,14
330 PLOT 43-RQ,5:DRAWTO 43-RQ,190
340 FOR I=5 TO 175 STEP 17
350 PLOT 11,I:DRAWTO 70+5*(3-RQ),I
```

```
360 NEXT I:Y=1
400 FOR I=0 TO 4
410 Z(0,I)=INT(1+RT*RND(0)):IF RP OR I
=0 THEN 450
420 FOR J=0 TO I-1
430 IF Z(0,I)=Z(0,J) THEN POP :GOTO 41
0
440 NEXT J
450 Z(1,I)=Z(0,I):NEXT I
500 FOR I=0 TO RS:A(I)=1:C=1:GOSUB 200
0:NEXT I
600 N=2:I=0
610 S=STICK(0):IF S=15 THEN 650
620 POKE 77,0:IF S=14 THEN GOSUB 2100
630 IF S=11 THEN GOSUB 2200
640 IF S=7 THEN GOSUB 2300
650 IF STRIG(0)=0 THEN 3000
660 GOSUB 2400
670 IF PEEK(53279)=6 THEN 310
680 IF PEEK(53279)=3 THEN 10
690 GOTO 610
2000 COLOR C:PLOT (I+RQ)*RR,Y*17
2010 DRAWTO (I+RQ)*RR,Y*17-5
2020 DRAWTO RR-1+(RR*(I+RQ-1)),17*Y-5
2030 POSITION RR-1+(RR*(I+RQ-1)),17*Y
2040 POKE 765,C:XIO 18,#6,0,0,"S:"
2050 RETURN
2100 C=N:GOSUB 2000:A(I)=N:SOUND 0,40,
10,15
2110 GOSUB 2500:SOUND 0,0,0,0
2120 GOSUB 2500:N=N+1:IF N>RT THEN N=1
2130 RETURN
2200 IF I=0 THEN RETURN
2210 I=I-1:C=A(I):N=C+1
```

```
2220 SOUND 0,80,10,15:GOSUB 2500
2230 SOUND 0,0,0,0:GOSUB 2500:RETURN
2300 IF I=RS THEN RETURN
2310 I=I+1:C=A(I):N=C+1
2320 SOUND 0,80,10,15:GOSUB 2500
2330 SOUND 0,0,0,0:GOSUB 2500:RETURN
2400 C=0:GOSUB 2000:C=N-1:IF C=0 THEN
C=RT
2410 GOSUB 2000:RETURN
2500 FOR W=1 TO D:NEXT W:RETURN
3000 S=0:T=0:FOR I=0 TO RS
3010 IF A(I)=Z(1,I) THEN S=S+1:Z(1,I)=
-1:A(I)=-1
3020 NEXT I
3030 FOR I=0 TO RS
3040 IF A(I)=-1 THEN NEXT I:GOTO 3100
3050 FOR J=0 TO RS
3060 IF A(I)<>Z(1,J) THEN NEXT J:NEXT
I:GOTO 3100
3070 T=T+1:Z(1,J)=-1:POP :NEXT I
3100 IF S=0 THEN 3150
3110 C=7:FOR I=3+RQ TO S+2+RQ
3120 GOSUB 2000:SOUND 0,30,10,15
3130 GOSUB 2500:SOUND 0,0,0,0:NEXT I
3140 IF S=RS+1 THEN I=0:GOTO 3250
3150 IF T=0 THEN 3200
3160 C=8:FOR I=S+3+RQ TO S+T+2+RQ
3170 GOSUB 2000:SOUND 0,60,10,15
3180 GOSUB 2500:SOUND 0,0,0,0:NEXT I
3200 FOR I=0 TO 4:Z(1,I)=Z(0,I):NEXT I
3210 Y=Y+1:IF Y<>11 THEN 500
3220 GOSUB 2500:FOR I=0 TO RS
3230 SOUND 0,243,10,15:C=Z(0,I):GOSUB
2000:GOSUB 2500
3235 SOUND 0,0,0,0:GOSUB 2500:NEXT I
3240 I=6
3250 D=150:GOSUB 2500:D=80
3255 SOUND 0,121,10,6:GOSUB 2500
3260 SOUND 1,96+I,10,6:GOSUB 2500
3270 SOUND 2,81,10,6:GOSUB 2500
3280 SOUND 3,60,10,6:GOSUB 2500
3290 D=150:GOSUB 2500:D=30
3300 SOUND 0,0,0,0:SOUND 1,0,0,0
3310 SOUND 2,0,0,0:SOUND 3,0,0,0
3320 IF PEEK(53279)=6 THEN 310
3330 IF PEEK(53279)=3 THEN 10
3340 GOTO 3320
```

* * *

SNAKE

by Gregg Ramsey

You are a very hungry purple snake and since purple snakes eat blue dots, the computer has scattered some in your vicinity. So go ahead and eat! What could be easier?

Unfortunately for you, these are not ordinary blue dots. When eaten, they cause green dots to appear - and these are poisonous, so don't eat them or you will get frizzled. You might also notice that the walls are green and like all things green in this game, you will frizzle at only the slightest touch. Be careful that you don't run into yourself either, as you will be eating your most precious possession and will lose points.

The button on your joystick is the hyperspace button. Whenever you press it, you are torn away from your old body and transported to another part of the screen. Use this only when you're in a real fix because you might just get transported onto a green dot. You will not be transported until you release the button, so you can have a rest if you like.

If you manage to finish off a whole screen of blue dots, you will find yourself with another screen where there is more food. You score more, but things get a little faster and you lose more points for eating yourself. You can choose a higher level to start with by typing in that level when the title page is being displayed.

When you finish the game and leave it for a short time, the computer will start playing by itself. This is called the attract mode and is used in arcade games when nobody is playing. This serves the dual purpose of attracting people to the machine and showing them how to play the game. The attract mode in SNAKE is slightly different, because you can steer the snake yourself but when you let go, the computer takes over again.

```
1 REM ##############################
2 REM #            SNAKE           #
3 REM #        by Gregg Ramsey     #
4 REM # Published by Atari Computer #
5 REM #    Enthusiasts (N.S.W.)    #
6 REM #        December 1982       #
7 REM ##############################
10 SKILL=0:LOUD=8:DIM A$(5):A$="GREAM"
20 GOSUB 3000
30 GOSUB 1000
40 FOR REG=0 TO 45-5*SKILL:NEXT REG
50 IF  NOT STRIG(0) THEN GOTO BUTTON
60 ST=STICK(0):IF ST=15 THEN GOTO NIL
70 POKE 77,0:DX=(ST=7)-(ST=11):DY=(ST=
13)-(ST=14)
80 X=X+DX:Y=Y+DY
90 LOCATE X,Y,REG
100 IF REG=1 THEN 800
110 IF REG=2 THEN 700
120 IF REG=3 THEN GOTO FRIZ
130 COLOR 1:PLOT X,Y:FOR A=5 TO 0 STEP
 -2:SOUND 0,A,10,LOUD:NEXT A:SOUND 0,0
,0,0:GOTO 40
200 IF RND(0)>0.2 THEN 80
210 DX=INT(RND(0)*3)-1:DY=0
220 IF DX=0 THEN DY=1:IF RND(0)>0.5 TH
EN DY=-1
230 GOTO 80
300 ST=(PEEK(20)+256*PEEK(19)+65536*PE
EK(18))/30
310 TIME=INT(ST+0.5)/100
320 RATE=INT(SCORE/TIME/60+0.5)/100
330 ? CHR$(125);"FRIZZLED AT LEVEL ";S
KILL;" IN ";TIME;" MINUTES":? " SCORE=
";SCORE;
340 POKE 657,15:? "RATE=";RATE;" POINT
S/SEC":? "    PRESS TRIGGER TO PLAY AG
AIN";
350 FLAG1=1:FOR A=0 TO 15 STEP 0.1:SET
COLOR 2,A,14:SOUND 0,A*16,0,LOUD:NEXT
A:SOUND 0,0,0,0:SETCOLOR 2,11,8
360 SETCOLOR 1,8,8
370 FOR A=0 TO 80:IF  NOT STRIG(0) THE
N POP :GOTO 20
380 NEXT A:POKE 53279,0:SETCOLOR 1,8,2
390 FOR A=0 TO 230:IF  NOT STRIG(0) TH
EN POP :GOTO 20
400 NEXT A:POKE 53279,0
410 FLAG1=FLAG1+1:IF FLAG1<6 THEN 360
420 SC=510:BUTTON=20:NIL=200:FRIZ=350:
WINDOW=2010:GOTO 30
500 POKE 657,31:? SCORE;"  ";
510 RETURN
600 X=INT(RND(0)*76)+2:Y=INT(RND(0)*36
)+2:GOTO 50
700 COLOR 1:PLOT X,Y:SCORE=SCORE+10+SK
ILL*5:GOSUB SC
710 SV=SV-1:IF SV=0 THEN SKILL=SKILL+1
:GOTO 30
720 COLOR 3:FOR A=40 TO 0 STEP -20:SOU
ND 0,A,10,LOUD:ST=INT(RND(0)*78)+1:I=I
NT(RND(0)*38)+1
730 LOCATE ST,I,L:IF L=0 THEN PLOT ST,
I
740 NEXT A:SOUND 0,0,0,0:GOTO 40
800 SOUND 0,X,12,LOUD:SOUND 1,Y,12,LOU
D:SOUND 0,0,0,0:SOUND 1,0,0,0
810 SCORE=SCORE-5-5*SKILL
820 GOSUB SC:GOTO 40
1000 ? #6;CHR$(125):COLOR 3:PLOT 0,0:D
RAWTO 79,0:DRAWTO 79,39:DRAWTO 0,39:DR
AWTO 0,0:GOSUB WINDOW
1010 COLOR 2:SV=10+10*SKILL:FOR A=1 TO
 SV
1020 ST=INT(RND(0)*76)+2:I=INT(RND(0)*
36)+2
1030 LOCATE ST,I,L:IF L=2 THEN 1020
1040 PLOT ST,I:SOUND 0,A+20,10,LOUD:NE
XT A
1050 SOUND 0,0,0,0
1060 IF FLAG2=0 THEN POKE 20,0:POKE 19
,0:POKE 18,0
1070 FLAG2=1:X=40:Y=20:DX=-1:DY=0
1080 COLOR 1:PLOT X,Y:RETURN
2000 ? CHR$(125):? "  SKILL LEVEL: ";S
KILL;:POKE 657,24:? "SCORE: ";SCORE;:R
ETURN
2010 ? CHR$(125):? :? "    PRESS TRIGG
ER TO PLAY AGAIN";:RETURN
3000 SC=500:BUTTON=600:NIL=80:FRIZ=300
:WINDOW=2000:SCORE=0:FLAG1=0
3010 FLAG2=0:GRAPHICS 2:POKE 559,0:DL=
PEEK(560)+256*PEEK(561)
3020 FOR A=DL+9 TO DL+14:POKE A,10:NEX
T A
3030 POSITION 7,0:? #6;"SNAKE"
3040 POSITION 2,2:? #6;"by gregg ramse
y"
3050 POSITION 0,4:FOR A=1 TO 24:? #6;A
$;:NEXT A
3060 SETCOLOR 0,4,6:SETCOLOR 1,12,8:SE
TCOLOR 2,3,2:SETCOLOR 4,0,10:POKE 752,
1:POKE 764,255:POKE 559,34
3070 OPEN #1,4,0,"K:":POKE 657,8:? "EN
TER SKILL LEVEL (0-9)":POKE 657,7:? "O
R PRESS RETURN TO RETAIN"
3080 POKE 657,9:? "PRESENT LEVEL (i.e.
 ";SKILL;")"
3090 GET #1,A:IF A=155 THEN 3120
3100 IF A<48 OR A>57 THEN 3090
3110 SKILL=A-48
3120 CLOSE #1:GRAPHICS 5:SETCOLOR 0,4,
6:SETCOLOR 1,8,2:SETCOLOR 2,12,8:SETCO
LOR 4,0,10:POKE 752,1
3130 RETURN
```

SQUARES - A GAME OF SKILL

by John Massara

Squares is an arcade type game which requires a lot of skill and very little luck. The object of the game is to guide an ever growing white line using your joystick and cause it to run over the black squares to score "hits". Each hit gives you points (this varies depending on the frame), as well as adding another square to the playfield. Points are also awarded just for keeping the white line moving without hitting any squares. After one or two games, you will realise that you can score a lot more hits by running along the side of a square rather than just passing through the middle, however this requires more skill. You get bonus points at the completion of each frame.

As you progress through the frames, the squares get smaller and the line moves faster until you reach the dreaded 8th frame where the size of the squares is the same as a GRAPHICS 7 pixel! The game will finish if you hit the border or run into yourself. If you run into a "dead end" situation, you can use the "escape" option by pressing and holding the fire button. The line will stop moving so that you can have a good look at the screen. When you are ready, let go the button and the line will reappear in a new location for you to carry on.

Finally, if you wish to skip frames, just press the OPTION key while playing.

```
1 REM ##############################
2 REM #          SQUARES           #
3 REM #       by John Massara      #
4 REM # Published by Atari Computer #
5 REM #    Enthusiasts (N.S.W.)    #
6 REM #        December 1982       #
7 REM ##############################
10 FRAME=1:SC=0:FQ=160
20 SIZE=ABS(8-FRAME):DELAY=15/FRAME:BA
CK=FRAME+2:FINAL=20*FRAME:COUNT=0:HITS
=0:SQUARES=0
30 GRAPHICS 7:SETCOLOR 2,0,0:SETCOLOR
0,0,14:SETCOLOR 1,1,8:SETCOLOR 4,BACK,
4:POKE 752,1
40 DX=1:DY=0:X=90:Y=40:COLOR 2:PLOT 0,
0:DRAWTO 159,0:DRAWTO 159,79:DRAWTO 0,
79:DRAWTO 0,0
50 ? "FRAME: ";FRAME;:POKE 657,19:? "H
IGH SCORE: ";HS
60 ? :? "HITS: ";HITS;:POKE 657,13:? "
NEED: ";FINAL-HITS;:POKE 657,24:? "SCO
RE: ";SC;
70 A=RND(0)*140+10:B=RND(0)*65+5:COLOR
 3:PLOT A,B:DRAWTO A+SIZE,B:DRAWTO A+S
IZE,B+SIZE:DRAWTO A,B+SIZE:DRAWTO A,B
80 SQUARES=SQUARES+1
90 COLOR 1:LOCATE X,Y,Z:IF Z=1 THEN ?
:? :? "      YOU RAN INTO YOURSELF!":
GOTO 240
100 IF Z=2 THEN ? :? :? "      YOU RAN
 INTO THE BORDER!":GOTO 240
110 INC=INC+1
120 PLOT X,Y:FOR D=1 TO DELAY:NEXT D:I
F Z=3 THEN 310
130 IF PEEK(53279)<>3 THEN 160
140 FRAME=FRAME+1:IF FRAME>8 THEN FRAM
E=1
150 GOTO 20
160 S=STICK(0):IF S=15 THEN 210
170 POKE 77,0:IF S=14 THEN DX=0:DY=-1
180 IF S=13 THEN DX=0:DY=1
190 IF S=11 THEN DX=-1:DY=0
200 IF S=7 THEN DX=1:DY=0
210 IF STRIG(0)=1 THEN 230
220 X=RND(0)*150+2:Y=RND(0)*70+2:GOTO
210
230 X=X+DX:Y=Y+DY:GOTO 90
240 FOR W=1 TO 1000:NEXT W:IF SC>HS TH
EN HS=SC
250 GRAPHICS 0:SETCOLOR 2,11,4:SETCOLO
R 4,11,4:SETCOLOR 1,11,10:POKE 752,1
260 POSITION 14,5:? " GAME OVER ":POSI
TION 10,9:? " YOUR SCORE:  ";SC
270 POSITION 10,11:? " HIGH SCORE:  ";
HS
280 POSITION 5,15:? "Press  START  or
 FIRE BUTTON ":POSITION 13,17:? "for a
 new game"
290 POKE 755,0:IF PEEK(53279)=6 OR STR
IG(0)=0 THEN POKE 77,0:GOTO 10
300 POKE 755,2:GOTO 290
310 SOUND 0,FQ,10,10:X=X+DX:Y=Y+DY:SC=
SC+100*FRAME+INC:INC=0:SOUND 0,0,0,0:H
ITS=HITS+1:SQUARES=SQUARES+1
320 POKE 657,8:? HITS;:POKE 657,19:? F
INAL-HITS;" ";:POKE 657,31:? SC;
330 IF HITS<FINAL THEN 70
340 BONUS=(SQUARES-HITS)*100*FRAME:SC=
SC+BONUS:FRAME=FRAME+1
350 ? :? :? "   BONUS POINTS ------>
 ";BONUS:FQ=FQ-20
360 FOR E=1 TO 4:SOUND 0,30,10,10:POKE
 755,0:FOR W=1 TO 50:NEXT W:SOUND 0,0,
0,0
370 POKE 755,2:FOR W1=1 TO 30:NEXT W1:
NEXT E
380 FOR W=1 TO 500:NEXT W:GOTO 20
```

128 COLOURS

by Alan Cashin

After buying the Assembler Editor cartridge, I tried the program which puts all 128 colours on the screen at the same time (Example 4 in Appendix 9 of the Assembler Editor Manual). It worked alright, but was not a very useable presentation in its initial form, so I wrote the BASIC version shown here which is likely to be acceptable to more people.

After playing with GRAPHICS 10 and 11, I realise the whole thing could have been a lot simpler using them, but I decided to leave it as is because it uses player-missile graphics to bring up 5 of the 8 starting colours (you will understand when you get the program running).

The subroutine in lines 300-380 sets up the machine language subroutine in page 6. This handles the display list interrupts. The machine language is stored as hexadecimal as this can be printed in the magazine whereas the "byte for byte" system cannot. I also prefer to store it this way, as it can be cross referenced to the assembler listing if necessary. Make sure you save the program <u>before</u> running it, as the system will almost certainly crash if you've got a typing error in the machine language strings. Use SYSTEM RESET to remove creepy crawlies from the screen (but first use BREAK to see them).

I realise this program won't win any prizes for dynamic displays or startling sound, but I find it useful to pick the colours I want, and it may have some coding which is useful to other members.

```
1 REM ###############################
2 REM #    ALL COLOURS GENERATOR    #
3 REM #        by Alan Cashin       #
4 REM # Published by Atari Computer #
5 REM #    Enthusiasts (N.S.W.)     #
6 REM #        December 1982        #
7 REM ###############################
10 GRAPHICS 21
19 REM *** FIND PLACE FOR PLAYER-MISSI
LE STUFF ***
20 M=(INT(PEEK(742)/4)-1)*4:POKE 54279
,M:M=M*256
30 FOR I=M+384 TO M+1023:POKE I,0:NEXT
 I
39 REM *** COLOURS ***
40 FOR I=0 TO 7:POKE 704+I,I*32+24:NEX
T I
49 REM *** PLAYER-MISSILE DATA ***
50 FOR I=0 TO 3:POKE 53248+I,I*20+48:P
OKE 53252+I,I*4+188:POKE 53256+I,1:NEX
T I
60 POKE 53260,85:POKE 623,18:POKE 5327
7,3:POKE 559,46
69 REM *** PLAYER 1 TO 4 PATTERNS ***
70 FOR I=M+512 TO M+1023:GOSUB 200:NEX
T I
79 REM *** PLAYFIELD ***
80 FOR I=1 TO 3:COLOR I
90 FOR J=0 TO 47:K=J-INT(J/3)*3:IF K=0
 THEN 110
100 PLOT I*10+30,J:DRAWTO I*10+37,J
110 NEXT J:NEXT I
119 REM *** PLAYER 5 PATTERN ***
120 FOR I=M+384 TO M+511:GOSUB 200:NEX
T I
129 REM *** M.L. SUBROUTINE ***
130 GOSUB 300:A=USR(1536)
140 GOTO 140
200 J=I-INT(I/128)*128:IF J<16 OR J>11
1 THEN RETURN
210 K=J-INT(J/6)*6:IF K>3 THEN RETURN
220 POKE I,255:RETURN
300 DIM E$(230)
310 E$="68AD300285CCAD310285CDA003A9CA
91CCA008A98A91CCC8C8C8C035D0F7"
320 E$(61)="A9408D0002A9068D0102A90085
CE8D0FD4AD0FD42940F0F9AD0ED409808D"
330 E$(121)="0ED4600048A5CE8D0AD4188D1
2D069028D13D069028D14D069028D15D069"
340 E$(181)="028D16D069028D17D069028D1
8D069028D19D0690285CE6840"
350 FOR I=0 TO 114
360 J=ASC(E$(I*2+1))-48:IF J>9 THEN J=
J-7
370 K=ASC(E$(I*2+2))-48:IF K>9 THEN K=
K-7
380 POKE I+1536,J*16+K:NEXT I:RETURN
```

Odds & Sods

A regular column by Garry Francis

Internal News

First and foremost, please note that we have got a new address. This should be used for all correspondence from now on.

Atari Computer Enthusiasts (N.S.W.)
G.P.O. Box 4514,
Sydney,
N.S.W. 2001

* * *

The group has just made a purchase of bulk blank discs. These are available to members for $28 per box of 10, which compares quite well with the normal price of $50. Supplies are limited, so sales will be made on a first come, first served basis. Mail orders will be taken from country members, but please include an extra $1 for return postage within Australia or $2 for overseas.

* * *

Anybody wanting 48k RAM for their ATARI 400 may now get an upgrade board through the group. The cost is $150 for a changeover board (i.e. you supply your old 16k board plus the money). You must install the board yourself, but it is a very simple job. No knowledge of electronics is required, but you must be able to use a soldering iron. Full instructions are supplied. The changeover board utilises 64k RAM chips, so you won't have any of the dreaded power supply problems that plagued some ATARI 400 owners with RAMCRAM's in the past.

* * *

It is said that the video game industry uses a technology so advanced, that the Russians gave up stealing military computer components in favour of arcade games! Disney Studios have now released a movie about a magical journey into the heart of that technology - the strange and unknown world inside the computer. The movie is TRON.

TRON is a breakthrough in the film industry, just as Star Wars was a few years back and 2001: A Space Odyssey before that. It was produced at a cost of $17 million, $4 million of which was on computer generated imagery and another $6 million on non-computer generated special effects. But of more interest to us as ATARI owners, is that a large percentage of the film's thousands of sound effects were produced with an off-the-shelf ATARI 800!

After much acclaim in the U.S.A., TRON starts at the Rapallo theatre in Sydney on 3rd December. We have arranged a group booking for some time in mid December. Unfortunately, I can't supply full details at the time of writing, because of INSIDE INFO's lead time, but everything will be sorted out by the time you read this. The cost will be around $5.50 per ticket. Contact Peter Bamford (043) 42-2655 or Peter Dickeson 411-1758 immediately if you wish to come.

* * *

We are now actively seeking Public Domain software to build a software exchange. We particularly want original programs from members, so if you'd like to submit something, please contact John Massara through our new address or ring him on 713-6798. There is nothing for sale yet, so please don't pester him with requests for programs. Keep reading INSIDE INFO for an announcement of when the Exchange is operative sometime in the new year.

* * *

In Issue No.1, we announced a contest, whereby the author of the best article(s) submitted to INSIDE INFO in the first year of publication (i.e. up to Issue No.6) would receive a super-duper prize, but the prize was not specified. As we are now in a financially healthy situation, we have decided on a prize of $100 worth of software of your choice. This should be more than enough inspiration to all you budding authors out there. Submissions may cover any topic of your choice, but we'd naturally prefer articles and programs that take advantage of the marvellous capabilities built into the ATARI. Programs must be submitted on disc or cassette. Articles and other documentation must be typed in upper and lower case with 2 spaces between sentences and must also be submitted on disc or cassette. This is easily done using the Assembler Editor cartridge or a BASIC program consisting solely of REM or DATA statements. Alternatively, if the article is only very short (up to one page), it may be typed or printed (double spaced). Contact me if you need any help.

* * *

Peter Bamford has started an Adventure Special Interest Group (S.I.G.) for the benefit of any Adventure addicts amongst us. The aims are not clear just yet, but the main idea is to provide a source that you can turn to when frustrated by a seemingly insurmountable problem in an Adventure. The Adventurer's code of ethics shall be strictly adhered to (i.e. never tell anybody how to solve an Adventure...merely give them a hint). If there is sufficient interest, the group may prepare reviews, maps and hint sheets for every Adventure they can. They are also interested in obtaining public domain Adventures for the Software Exchange and program listings of Adventures from other computers that can be translated for the ATARI. There is no membership fee, but don't bother "joining" unless you are willing to contribute more than you would expect to get out of it. Any enquiries may be directed to Peter through our new address or by ringing him on (043) 42-2655.

If anyone else would like to start a S.I.G., then contact someone on the committee and we'll spread the word around. S.I.G.'s on Forth, PILOT, Assembly Language, Education and Arcade Games come immediately to mind.

* * *

All members have now been issued with a membership card. This may be used for all the upcoming group activities, but also entitles you to a 5% discount on anything you buy from Computer Wave (Lower Ground Floor, Myers, cnr. George and Market Streets, Sydney). We would like to expand this service to include other retailers, so please let us know if your local retailer would be interested.

* * *

Due to popular demand, INSIDE INFO No.1 has been reprinted so that a limited number of all back issues is now available. These are available to members only by sending $2.50 per issue to the Secretary at our new address. Overseas members please add $1 for the extra airmail postage.

* * *

A friend of a member has offered to do a group logo or slogan on T-shirts at a very reasonable price. If you've got any ideas for this, please let us know.

* * *

With the increasing popularity of the home computer as a communications device, it is only natural that A.C.E.(N.S.W.) should eventually set up a Bulletin Board Service along the same lines as users' groups, software houses and others in the U.S.A. Paul Phillips and Vince Grogan have been elected to look into the feasibility of doing just that. They need every scrap of information they can get, so if you have any information at all on Bulletin Boards, modems, mass storage devices, communications software, legal and financial aspects or anything else of relevance to a Bulletin Board Service, then please contact them through our new address or give them a ring...Paul Phillips 449-6286.

* * *

I am considering writing an article on the design of an arcade type game in ATARI BASIC. I would like to present this as a step by step guide to an actual game, but just to prove that it is not contrived, I need to get the game idea from one of our members. You must supply as much information as possible (descriptions, sketches, game logic, etc.) to allow me to imagine what you have in mind. It must be relatively simple to implement and preferably original in concept (although I will consider a game converted from another machine or one that you've previously started and become bogged down with). Ideas must be submitted in writing - nothing else will be considered. If this project is successful, the person submitting the game idea that is chosen will be given a free copy of the final program and a disc or cassette from the Software Exchange. Send all submissions to The Editor at our new address.

External News

Futuretronics have recently employed Colin Macpherson for the role of Educational Director. His job is to sell the ATARI to the Education Department, but upon talking to him, he also promised support to the user in general and to users' groups in particular. He wants us to let him know of any specific gripes and groans and he'll see what he can do. There is not a single ATARI owner in Australia that is happy with the way Futuretronics have been handling the ATARI's marketing, particularly with regard to the outrageous prices, so now is the time to write. Even if you've never written a letter to anyone in your life, please write now and let Colin know of your dissatisfaction. Try to send a copy to us as well, so that we can follow it up as a group. (Note that Futuretronics has moved into a new space-age building financed on the profits of ATARI products and has therefore got a new address.)

Colin Macpherson
c/- Futuretronics Australia Pty. Ltd.
1076 Centre Road,
South Oakleigh,
Victoria 3167

* * *

IMAGINEERING are now locally producing software for the ATARI. They have a good range of programs, but most of these are direct translations of Apple games and suffer as a consequence, although some of the programs are exceptionally good. The best point however, is that prices are comparable with U.S. prices, which is how things should be. You will find that IMAGINEERING's prices are almost half the price that Futuretronics would charge for a similar product! 3 cheers for IMAGINEERING!

* * *

David Alexander from Queensland has contacted us to let members know of his printer ribbon re-inking service. If you would like to take advantage of this service, send your ribbon cartridge(s) along with a payment of $5 per cartridge and $1 for postage to:

David Alexander
126 Scarborough Street,
Southport,
Queensland 4125

Other Users' Groups

David Tennant writes to tell us of a users' group in W.A. called The Western Australian Atari Computer Club. They have a newsletter, regular meetings (with lectures on various subjects every month or so) and some very cheap programs on tape for members. Membership is $20 per family per year. For further information, write to:

The Western Australian Atari Computer Club
P.O. Box 7169,
Cloisters Square,
Perth,
W.A. 6000

* * *

Ken Moorley has contacted us to advise of a group forming in the Cronulla Sutherland area. They have about 10 people interested at the moment and meet at The Computer Connection, 629 The Kingsway, Miranda. Contact Ken on 526-1404 (W) or 520-9470 (H) for further details.

* * *

We have also been giving assistance to people starting users' groups in South Australia and A.C.T. If you would like to help them, write to the secretary for their names and addresses.

Magazines

I was so impressed with ANALOG magazine after reviewing it for the magazine survey in Issue No.1, that I eventually decided to subscribe. Their advertisements clearly state $12 for 6 issues per year plus $36 for overseas airmail, so I sent off a cheque for $48! In the meantime, I read some nasty comments about ANALOG in other newsletters (e.g. they are known for not paying their authors). My magazines never arrived, so I had to write to them a second time. After 3 months, I began to think that I'd done my dough. The first issue eventually arrived, but had been sent surface mail. So be warned! ANALOG is a great magazine, but don't waste your money by subscribing because they won't deliver the goods as promised!

* * *

Contrary to what I told you in Issue No.2, Computer Gaming World is not actually a new magazine, but has been around for over a year. It's released bi-monthly and is chock full of reviews of computer games for all the popular microcomputers, but concentrates mainly on simulations (such as the EPYX/Automated Simulations, Avalon Hill and Strategic Simulations Inc. type games). Feature articles cover 2 or 3 pages on all the intricacies and game playing strategies of the game under review. If you're into strategic computer games (which I'm not), you may find this magazine of considerable interest. You used to get 6 issues per year including airmail postage for $US25, but I believe the subscription rates went up in October. Write for further details to:

Computer Gaming World (Dept. S)
1919 E. Sycamore #203
Anaheim, CA 92805
U.S.A.

* * *

I do not intend to make a habit of reviewing users' group newsletters, but there is one very good newsletter from Michigan A.C.E. that is worth mentioning. M.A.C.E. is one of the largest ATARI users' groups in the world and have taken a very different approach to their newsletter than most other groups in as much as they carry advertising along the lines of a commercial publication. (I believe they also sell the newsletter through some computer stores.) Contents vary considerably from issue to issue and is sometimes disappointing. Noteable articles from recent issues include Cassette I/O, Conquering the Character Set, Interfacing Your ATARI to the Real World and some great hints and educational stuff. Membership for Aussies is $US35 per year ($US20 of this goes towards airmail postage). As a member, you can also get programs from the M.A.C.E. Program Library. Send membership or enquiries to:

Michigan Atari Computer Enthusiasts
P.O. Box 2785,
Southfield, MI 48037
U.S.A.

☆☆☆

New Members

Lyndon Adams, Valentine
Jack Aggett, Riverwood
Tan Hong Bak, Singapore
Bruce Barnes, Aranda, A.C.T.
Damien and Carina Brell, Singleton
Robert Burgess, Blackalls Park
Ian Champ, Launceston, Tasmania
Gavin Chapman, West Pymble
N.F. Conway, Nightcliff, N.T.
S. Costagliola, Ashfield
Allen Dawes, St. Andrews
Anthony Dinallo, Haberfield
Craig Fizzell, South Wentworthville
Vincent Grogan, Chain Valley Bay
Leon Hagis, Greystanes
Stephen Hales, West Pymble
Vinko Kaopich, Wollongong
Ian Kingsland, Sutherland
Nicholas Kloiser-Jones, Lismore
Gregory Marthick, Erskineville
Ben Michell, Dee Why
John Pye, Ebenezer
Terry Rudkin, Keiraville
R.L.J. Shaw, Wagga Wagga
Brett Smith, North Ryde
Francis Szabo, Rockley
Peter Tucker, Lismore
Steve Turnbull, Seven Hills
Norm Williamson, Westleigh
Paul Zerefos, Sylvania

A FLASHING CURSOR FOR THE ATARI

by John Massara

The Vertical Blank Interrupt

One powerful feature of the Atari computer is its "background processing" capability. This means that the computer can run the main "foreground" job (usually your BASIC program) and run a "background" job at the same time. This is done by means of the vertical blank interrupt.

Every 20 milliseconds when a TV frame is completed, the 6502 microprocessor gets a vertical blank interrupt. This causes it to stop excecuting the current (foreground) program and execute a standard vertical blank interrupt service routine which is resident in the Operating System. (This updates all the system timers, game controllers, etc.) The clever bit however, is that ATARI have provided a vector through which the user can jump to his own routine every time a vertical blank occurs. Actually, there are 2 vectors - the immediate vertical blank interrupt vector VVBLKI [$0222] and the deferred vertical blank interrupt vector VVBLKD [$0224]. This article is referring to the latter.

To set the jump address into the vector locations, you need a machine language routine since BASIC is too slow and you may get an interrupt while in the middle of setting the vector, thus causing the 6502 to jump to an unwanted address and almost certainly crash the system. Even in machine language the vector must be set at the right time to avoid such problems. Once again, ATARI comes to the rescue by providing a routine in the Operating System called SETVBV [$E45C] which sets the vector at the correct time. To use this routine, all you have to do is load the MSB (Most Significant Byte) and LSB (Least Significant Byte) of the start address of your own routine into the X and Y registers respectively and load the accumulator with a 7 to indicate the deferred vertical blank vector then JSR SETVBV. Once the vector is set, your routine will automatically execute every 20 mS (i.e. each frame) after the standard immediate vertical blank interrupt routine is finished. The last instruction in your routine must be a JMP XITVBV [$E642]. This is the standard deferred vertical blank interrupt routine which will itself return the 6502 to the main program.

About the Program

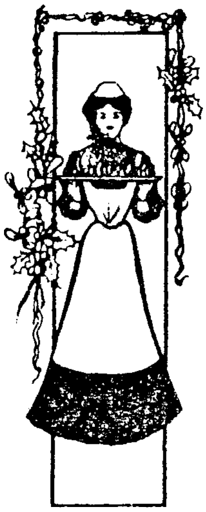
The first listing is a BASIC program that will load the object code necessary to install a deferred vertical blank interrupt routine which will implement a flashing cursor on the ATARI. The routine runs in the background and once set you don't have to worry about it. The technique to flash the cursor uses ANTIC's character control register CHACTL [$D401]. (This is "shadowed" by the Operating System at CHACT [$02F3].) When bit D1 of this register is 1 (i.e. logic true), any character with the uppermost bit set will display in inverse video or when 0 (i.e. logic false), the same character will display in normal video. By toggling bit D1 of CHACT, we can make an inverse character "blink". (Note that the cursor is merely a space in inverse video.) The routine given here blinks the cursor every 15 frames or (300 mS) which I found to be a pleasant rate.

The BASIC program when RUN will set the whole process in motion and then wipe itself out so you can use your computer in the normal manner. Make sure you save the program on disc or cassette before RUNning it, or you'll have to type it in again when you need it at a later date. Alternatively, you can delete NEW from line 60.

When accessing the cassette or disk drive, the cursor will stop flashing since these operations take priority, but it will continue to flash again when the access ends. If SYSTEM RESET is pressed, the routine will be cancelled but it can be recalled by typing X=USR(1536) in direct mode. Note that because of the technique used, any other character in inverse video will also flash together with the cursor.

The second listing is the assembled source code so you can understand how the routine works. It is self explanatory. If you have a disk drive, it is possible to create an AUTORUN.SYS file containing this routine so that when the system is booted up you will have a flashing cursor without doing a thing. If a different flashing rate is required, change the value at location 1556 using a POKE under BASIC, or for a permanent change replace the 15 in line 100 of the BASIC program with the desired value. This value represents the number of TV frames between blinks. Finally, bear in mind that this program resides in page six and if you run any BASIC programs that use machine language routines in that page, you may crash the system.

```
1 REM ##############################
2 REM #   FLASHING CURSOR ROUTINE   #
3 REM #       by John Massara       #
4 REM # Published by Atari Computer #
5 REM #    Enthusiasts (N.S.W.)     #
6 REM #        December 1982        #
7 REM ##############################
10 LD=1536:REM PAGE SIX RAM
20 READ A:IF A=-1 THEN 50
30 POKE LD,A:LD=LD+1
40 GOTO 20
49 REM xxx SET UP VBLANK VECTOR xxx
50 X=USR(1536)
60 GRAPHICS 0:NEW
70 DATA 104,169,0,141,42,6
80 DATA 162,6,160,16,169,7
90 DATA 32,92,228,96,238,42
100 DATA 6,169,15,205,42,6
110 DATA 208,13,169,2,77,243
120 DATA 2,141,243,2,169,0
130 DATA 141,42,6,76,98,228,-1
```



```
            0200 ;############################
            0201 ;# FLASHING CURSOR SOURCE CODE #
            0202 ;#       by John Massara       #
            0203 ;# Published by Atari Computer #
            0204 ;#    Enthusiasts (N.S.W.)     #
            0205 ;#        December 1982        #
            0206 ;############################
            0207 ;
0000        0208         *=  $0600      ;Origin
            0209 ;
E45C        0210 SETVBV =    $E45C      ;Vector to set Vertical Blank
E462        0211 XITVBV =    $E462      ;Vector to exit Vertical Blank
02F3        0212 CHACT  =    $02F3      ;Shadow register for CHACTL
062A        0213 COUNT  =    $062A      ;Frame count
            0214 ;
            0215 ;THIS ROUTINE SETS THE VECTOR
            0216 ;
0600 68     0217        PLA             ;POP for USR
0601 A900   0218        LDA  #$00       ;Zero the...
0603 8D2A06 0219        STA  COUNT      ;frame counter
0606 A206   0220        LDX  #$06       ;MSB of FLASH
0608 A010   0221        LDY  #$10       ;LSB of FLASH
060A A907   0222        LDA  #$07       ;Indicate Deferred VBI
060C 205CE4 0223        JSR  SETVBV     ;Do it
060F 60     0224        RTS             ;Return to BASIC
            0225 ;
            0226 ;THIS IS THE ROUTINE THAT GETS
            0227 ;EXECUTED EVERY 20 mS
            0228 ;
0610 EE2A06 0229 FLASH  INC  COUNT      ;Increment frame count
0613 A90F   0230        LDA  #$0F       ;Flash rate
0615 CD2A06 0231        CMP  COUNT      ;15 frames?
0618 D00D   0232        BNE  EXIT       ;No...exit
061A A902   0233        LDA  #$02       ;Yes...load mask
061C 4DF302 0234        EOR  CHACT      ;Invert bit
061F 8DF302 0235        STA  CHACT      ;Store it
0622 A900   0236        LDA  #$00       ;Reset the...
0624 8D2A06 0237        STA  COUNT      ;frame counter
0627 4C62E4 0238 EXIT   JMP  XITVBV     ;Exit the VBI
062A        0239        .END
```

COPYRIGHT LAW - ITS USE AND ABUSE

Part 2

by Peter Stanhope

THE NATURE OF COPYRIGHT

Copyright is given to, or derived from, work done by the author, composer or creator of a WORK. It is not a right to the novelty of an idea, but a right to the owner to prevent others from copying his original work. A second person, producing an identical result, will not be in breach of the law providing that he obtained the result in an entirely independent way. THE RIGHT IS TO PREVENT THE COPY OF AN ORIGINAL WORK - NOT TO PROTECT IDEAS.

The main difficulty in understanding Copyright Law is the association of Copyright with Patent and Trademark Laws. Patents and Trademarks are classed as "Intellectual" or "Industrial" PROPERTIES, whereas Copyright is classed as "Private" PROPERTY along with "Passing Off", "Breach Of Confidence" and "Invasion of Privacy".

COPYRIGHT ACTS AND CONVENTIONS

As you are probably aware, Australian Law is generally inherited from British Law and therefore most Australian Law is identical. Here is a brief history of Copyright Law:-

1709 The first Copyright law was passed giving rights to published works for 21 years after the date of publication. Books had to be registered. Unpublished works had rights for 14 years.

1842 Changed the protection to 7 years after the author's death or 42 years after publication, whichever was the longest.

1911 Repealed all other Acts. Changed the protection to 50 years after the author's death for both published and unpublished works. Works no longer had to be registered, providing a claim could be proven. (The registry still operates for those wishing to use it.)

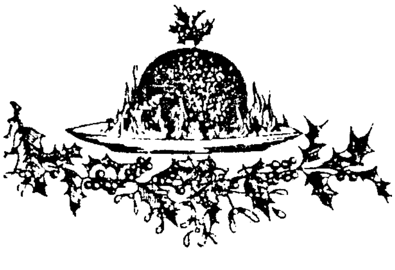
1956 This act contains most of the current legislation. The only differences are parts amended by different countries. This Law is agreed upon by all countries party to either of the two International Conventions.

THE CONVENTIONS

BERNE: The Berne Convention For The Protection Of Literary And Artistic Works (9/9/1886). This was revised in Paris in 1971.

UCC: Universal Copyright Convention. This was also revised in Paris in 1971. The only major country NOT party to either of these conventions is Red China.

(Definition of terms next newsletter)



Articles needed for next issue. Send them to the Editor now!

THE EVOLUTION OF A COMPUTER PROGRAMMER

①

②

③

④

1. The keen beginner
2. 3 months of programming
3. 6 months of programming
4. A whole year - you give up then!

Wrapping it up for 1982

A lot of people have complimented me on the clean, neat format and wealth of information in INSIDE INFO. Thank you. I appreciate it. But the mammoth task of compiling each issue could not possibly be accomplished without the contributions of our members. I'd therefore particularly like to thank the following people for submitting material for this first difficult year (and if your name's not here, then make sure it is next year): Ron Baxter, Alan Cashin, Robert Lang, Gregory Marthick, John Massara, Paul Phillips, Gregg Ramsey, Peter Stanhope and Brenton Vettoretti.

There are also a number of other people and organisations who have helped A.C.E.(N.S.W.) in a number of ways, but particularly ATARI Users' Group Support Program, Eugene A.C.E., Melbourne A.C.E., A.C.E. of Salt Lake, ATARI Computer Association of Orange County, Texas Instruments Users' Group and ANTIC Magazine. My apologies if I've left anyone out.

Finally, I'd especially like to thank Bernhard Kirschner of Computer Wave for doing our printing, supplying a computer and software at meetings, allowing us to advertise through his mailing list and giving members a 5% discount at his store. Thanks Bernhard. We couldn't have done it without you!

Let's look forward to an even better year in 1983!

- Garry Francis

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